



Complete Summary

TITLE

Ischemic heart disease: percent of patients hospitalized with acute coronary syndrome (ACS) with cardiac symptoms prior to or on arrival to the acute care setting who had an electrocardiogram (ECG, EKG) performed 15 minutes prior to arrival in acute setting or within 10 minutes after arrival (inpatient AMI JCAHO, inpatient AMI all, and inpatient NST-ACS/UA cohorts).

SOURCE(S)

Office of Quality and Performance (10Q). FY 2005 VHA executive career field network director performance measurement system and JCAHO hospital core measures. Technical manual. Washington (DC): Veterans Health Administration (VHA); 2005 Mar 9. 244 p.

Measure Domain

PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure assesses the percent of patients hospitalized with acute coronary syndrome (ACS) with cardiac symptoms prior to or on arrival to the acute care setting who had an electrocardiogram (ECG, EKG) performed 15 minutes prior to arrival in acute setting or within 10 minutes after arrival.

RATIONALE

Effective risk stratification is integral to proper management of acute coronary syndrome (ACS). At acute presentation, this stratification guides triage and directs initial therapeutic options. The American College of Cardiology (ACC) and

American Heart Association (AHA) recently published revised guidelines for the management of patients with non-ST elevation ACS that include early clinical assessment and risk stratification for all patients with suspected ACS. The ACC/AHA guidelines recommend an aggressive approach to initial risk stratification and medical therapy selection for all high-risk patients with non-ST-segment elevation (NSTEMI) ACS who are usually identified by elevated cardiac markers or ischemic ST-segment electrocardiogram (ECG, EKG) changes. Despite these recommendations, studies have shown that adherence to the ACC/AHA guidelines is suboptimal. It is critical to perform early testing or assessment that allows for the timely risk stratification of ACS patient into appropriate treatment groups. According to the ACC/AHA Guidelines (Class I conditions),

- Patients who present with chest discomfort should undergo early risk stratification that focuses on anginal symptoms, physical findings, ECG findings, and biomarkers of cardiac injury (Level of Evidence B) and this information should be used to determine the high, intermediate, or low likelihood of acute ischemia.
- A 12 lead ECG should be obtained immediately (within 10 minutes) in patients with ongoing chest discomfort and as rapidly as possible in patients who have a history of chest discomfort consistent with ACS but whose discomfort has resolved by the time of evaluation (Level of Evidence C).
- Biomarkers of cardiac injury should be measured in all patients who present with chest discomfort consistent with ACS. A cardiac troponin is the preferred marker. In patients with negative cardiac marker within 6 hours of onset of pain, another sample should be obtained in the 6- to 12-hour time frame (at 9 hours of onset of symptoms) (Level of Evidence C).

Additional studies support these guidelines aimed at guiding clinicians in risk stratifying patients acutely presenting with symptoms of ACS. Other studies confirm that the complementary use of ECG quantitative data and serial troponin measurements constitute the two most useful non-invasive tests in patients with non-ST segment elevation ACS in determining ischemic burden on admission, categorizing patients into treatment groups, and supplying prognostic information. In the progressive evolution of cardiac marker testing, the clear superiority of the highly sensitive and cardiac specific troponin as the new gold standard assay has been demonstrated.

The goal of risk stratification is to identify patients whose outcomes can be improved through specific clinical interventions at different points of care, thus affecting both relative and absolute risk reduction in clinically significant endpoints. Baseline clinical and demographic risk factors are combined with ECG and laboratory findings to develop a risk profile that can direct the appropriate level of care, and predict the expected outcomes in response to these therapies. Because the ECG and troponin data are crucial to the risk early stratification model, it is vital that these be obtained rapidly. Subsequently, cardiology resources can be allocated based on the risk profile, with high-risk patients receiving the benefit of cardiology involvement in the first 24 hours after arrival or ECG if acute myocardial infarction (AMI) experienced as an inpatient to direct and manage appropriate and timely acute intervention especially related to reperfusion.

PRIMARY CLINICAL COMPONENT

Ischemic heart disease; acute coronary syndrome (ACS); electrocardiogram (ECG, EKG)

DENOMINATOR DESCRIPTION

Patients from the Inpatient AMI JCAHO, Inpatient AMI All, and Inpatient NST-ACS/UA cohorts hospitalized for acute coronary syndrome (ACS) with cardiac symptoms prior to or on arrival to the acute care setting (see the related "Denominator Inclusions/exclusions" field in the Complete Summary)

NUMERATOR DESCRIPTION

The number of patients from the denominator who had had an electrocardiogram (ECG, EKG) performed 15 minutes prior to arrival in acute setting or within 10 minutes after arrival (see the related "Numerator Inclusions/Exclusions" field in the Complete Summary)

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

NATIONAL GUIDELINE CLEARINGHOUSE LINK

- [ACC/AHA 2002 guideline update for the management of patients with unstable angina and non-ST-segment elevation myocardial infarction. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines \(Committee on the Management of Patients With Unstable Angina\).](#)
- [VA/DoD clinical practice guideline for management of ischemic heart disease.](#)

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Overall poor quality for the performance measured
Use of this measure to improve performance
Variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Office of Quality and Performance (10Q). FY 2005 VHA executive career field network director performance measurement system and JCAHO hospital core measures. Technical manual. Washington (DC): Veterans Health Administration (VHA); 2005 Mar 9. 244 p.

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

External oversight/Veterans Health Administration
Internal quality improvement

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Unspecified

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Acute coronary syndrome (ACS) is the leading cause of morbidity and mortality among both men and women in the United States, affecting more than 13.9 million people. The acute presentation of ACS is varied, with acute myocardial infarction (AMI) being the most dramatic of presentations. Annually, AMI affects approximately 1.1 million people in the United States. The mortality rate with AMI is approximately 30%. About once every 29 seconds, an American suffers a coronary event, and about every minute, someone dies from one.

EVIDENCE FOR INCIDENCE/PREVALENCE

Office of Quality and Performance (10Q). FY 2005 VHA executive career field network director performance measurement system and JCAHO hospital core measures. Technical manual. Washington (DC): Veterans Health Administration (VHA); 2005 Mar 9. 244 p.

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

See "Incidence/Prevalence" field.

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness
Timeliness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

Patients from the Inpatient Acute Myocardial Infarction (AMI) JCAHO, Inpatient AMI All, and Inpatient Non-Segment Elevation-Acute Coronary Syndrome/Unstable Angina (NST-ACS/UA) cohorts*

*Refer to the original measure documentation for patient cohort description.

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

Patients from the Inpatient AMI JCAHO, Inpatient AMI All, and Inpatient NST-ACS/UA cohorts* hospitalized for acute coronary syndrome (ACS) with cardiac symptoms prior to or on arrival to the acute care setting

*Refer to the original measure documentation for patient cohort description.

Exclusions

- Patients transferred in from a community hospital
- Patients who are already an inpatient when experiencing an acute myocardial infarction (AMI)
- Patients without cardiac symptoms on or prior to arrival
- Documented decision not to treat within 24 hours. The record clearly documents that the patient, patient's family, or legal representative wishes comfort measures only, and/or there is agreement that the patient's cardiac condition and co-morbid conditions preclude aggressive treatment. Documentation such as comfort measures only, hospice care, maintain treatment for comfort, terminal care, physician documentation that care is limited at family's request or due to patient's age or chronic illness, palliative care, supportive care only, will cause the patient to be excluded from the measure.

DENOMINATOR (INDEX) EVENT

Clinical Condition
Institutionalization

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions

The number of patients from the denominator who had had an electrocardiogram (ECG, EKG) performed 15 minutes prior to arrival in acute setting or within 10 minutes after arrival*

*Note:

Acute Arrival Time:

- For patients whose symptoms are recognized as cardiac in nature upon presentation to the facility, the acute arrival time is defined as the earliest recorded time the patient arrives in the hospital's acute care setting. Acute care setting is further defined as a setting where care for acute coronary syndrome (ACS) and acute myocardial infarction (AMI) could be most appropriately provided. Examples of acute care settings are emergency departments, medical

units, and intensive care units. Similarly, the arrival time of acute response teams such as chest pain teams assembled through hospital policy to provide acute chest pain triage, rapid intervention and quick disposition of suspected ACS patients is acceptable to be used as acute arrival time. Locations such as inpatient rehabilitation, long-term care and nursing homes, and outpatient clinics are not considered acute care settings. To further clarify through example, for those patients presenting to a scheduled clinic who are subsequently sent to an acute care setting for treatment of ACS, the clock will start when they arrive in the acute care setting. Conversely, for those with unscheduled presentations such as walk-ins, urgent care, and triage, the clock starts when the patient walks in.

- Arrival time at the acute care hospital setting is the definitive standard for timing of all subsequent interventions including performing the initial ECG. The time may be found recorded in the medical record in such places as the triage nurse notes, emergency room (ER) note, or the patient registration.

ECG Timely: Within the period 15 minutes prior to OR 10 minutes after arrival time in the acute hospital setting.

- First ECG After Acute Arrival: The date and time of the first ECG after arrival in the acute hospital setting is used in this measure. This is the first ECG done after the patient entered the acute care setting of a Veterans Health Administration (VHA) hospital.
- ECG Prior to Acute Arrival Time: An ECG done in a non-acute setting may be used as the first ECG if:
 - The time of this ECG is not greater than 15 minutes prior to the acute arrival time AND
 - There is documented evidence that the result of this ECG (i.e., ST elevation) was used to drive care decisions related to early acute intervention (i.e., reperfusion).

Note, however, if this pre-acute ECG is used to drive early acute interventions, the time of this ECG will be used as the default for acute arrival time and all care events will now be timed from this time rather than the actual acute arrival time.

12 lead ECG provides the earliest available objective information for risk stratification for ACS patients and is a requirement of this measure. If patient presented initially to another Veterans Affairs Medical Center (VAMC), the measure refers to the date and time the first ECG was done at that hospital.

Note: To successfully meet this measure, it is critical to assure, through QC checks, that ECG machine time stamps are synchronized with the Computerized Patient Record System (CPRS) clock.

Cardiac Symptoms On or Prior to Arrival: 24 hours prior to, or on arrival at any VAMC, patients with any of the following symptoms are considered to have cardiac symptoms:

- Chest pain or severe epigastric pain, non-traumatic in origin
- Central/substernal compression or crushing chest pain
- Pressure, tightness, heaviness, cramping, burning or aching sensation
- Unexplained indigestion, belching, epigastric pain
- Radiating pain in neck, jaw, shoulders, back, one or both arms
- Dyspnea
- Nausea and/or vomiting (Vomiting is the 4th most prevalent symptom in acute AMI patients)
- Diaphoresis

Exclusions

- Rhythm strip is not acceptable evidence of 12-lead ECG.
- Missing ECGs after acute arrival will fail this measure unless they meet the requirements for an ECG done in another setting

NUMERATOR TIME WINDOW

Fixed time period

DATA SOURCE

Administrative and medical records data

LEVEL OF DETERMINATION OF QUALITY

Individual Case

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Unspecified

STANDARD OF COMPARISON

Internal time comparison
Prescriptive standard

PRESCRIPTIVE STANDARD

Fiscal year (FY) 2005 targets for electrocardiogram (ECG, EKG) performed 15 minutes prior to arrival in acute setting or within 10 minutes after arrival (Inpatient AMI JCAHO, Inpatient AMI All, and Inpatient NST-ACS/UA cohorts):

- Meets Target: 75%
- Exceeds Target: 85%

EVIDENCE FOR PRESCRIPTIVE STANDARD

Office of Quality and Performance (10Q). FY 2005 VHA executive career field network director performance measurement system and JCAHO hospital core measures. Technical manual. Washington (DC): Veterans Health Administration (VHA); 2005 Mar 9. 244 p.

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Unspecified

Identifying Information

ORIGINAL TITLE

Ischemic heart disease (IHD): ECG timely.

MEASURE COLLECTION

[Fiscal Year \(FY\) 2005: Veterans Health Administration \(VHA\) Performance Measurement System](#)

MEASURE SET NAME

[Cardiovascular](#)

MEASURE SUBSET NAME

[Ischemic Heart Disease](#)

DEVELOPER

Veterans Health Administration

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2003 Nov

REVISION DATE

2005 Mar

MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures Clearinghouse is working to update this summary.

SOURCE(S)

Office of Quality and Performance (10Q). FY 2005 VHA executive career field network director performance measurement system and JCAHO hospital core measures. Technical manual. Washington (DC): Veterans Health Administration (VHA); 2005 Mar 9. 244 p.

MEASURE AVAILABILITY

The individual measure, "Ischemic Heart Disease (IHD) - ECG Timely," is published in "FY 2005 VHA Performance Measurement System: Technical Manual."

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NQMC STATUS

This NQMC summary was completed by ECRI on November 29, 2004. The information was verified by the measure developer on December 10, 2004.

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Date Modified: 8/21/2006

The logo for FIRSTGOV, with the word "FIRST" in blue and "GOV" in red, and a small graphic of a star above the "I".

